

Descriptions of new Tephritidae (Diptera) from Israel. II.

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ABSTRACT

Euarestella pninae n. sp., *Tephritis bimaculata* n. sp., *T. hurvitzi* n. sp. and *T. jabeliae* n. sp. are described from Israel and nearby areas. *T. hurvitzi* ranges from Greece to Israel and Uzbek S.S.R.

The present paper is the latest in a series of recent papers dealing with the taxonomy of Israeli Tephritidae (Freidberg, 1974, 1979a, 1979b, 1980; Kugler and Freidberg, 1975). This series serves as a preliminary study toward a comprehensive taxonomic treatment of the Israeli fauna (Freidberg and Kugler, in preparation). All the holotypes and most paratypes are deposited in the Department of Zoology, Tel Aviv University. Paratypes of the three *Tephritis* species will also be deposited in the British Museum (Natural History), London and the National Museum of Natural History, Washington, D.C.

Genus *Euarestella* Hendel

Euarestella Hendel 1927: 174. Type species, *Trypeta megacephala* Loew, by original designation.

In addition to the type species, *megacephala*, from Sicily, Hendel (1927) included in *Euarestella* an Egyptian species, *Euaresta iphionae* Efflatoun. Hering (1937: 260) described *Euarestella abyssinica* from Ethiopia, and Freidberg (1974: 56) described *Euarestella kugleri* from Israel and the Sinai.

The inclusion of the following new species in *Euarestella* broadens the concept of this already heterogeneous genus. The genus, as now recognized, comprises three

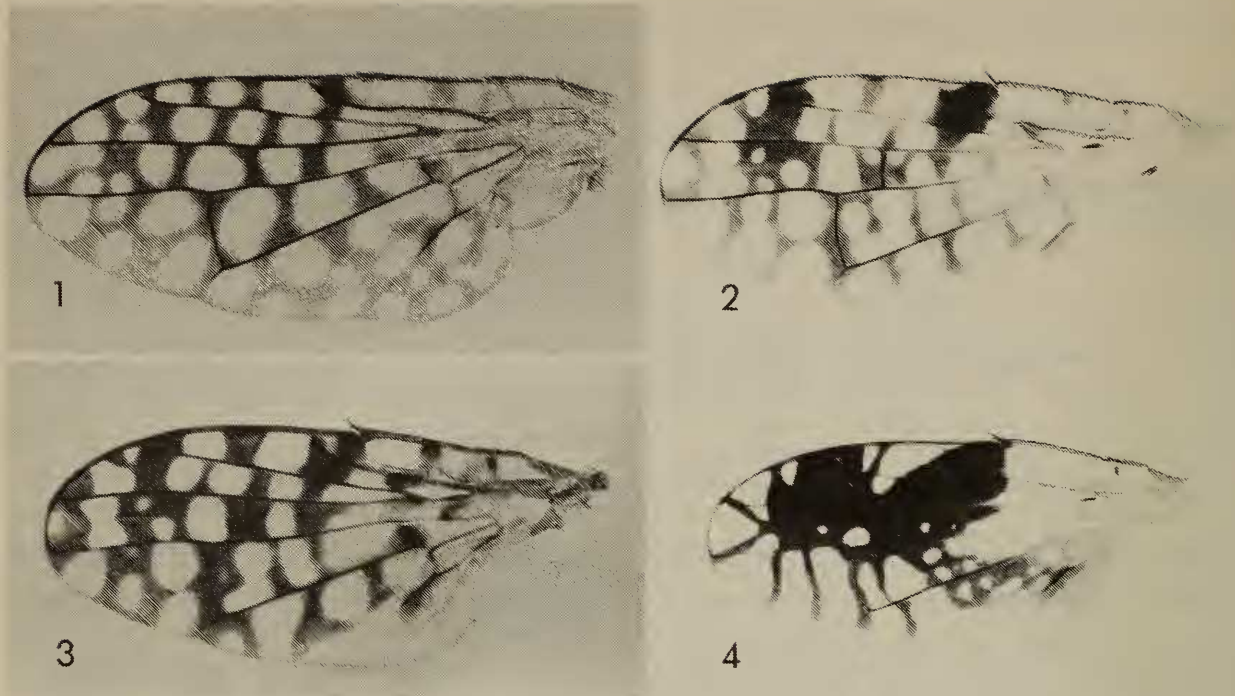
elements. The type species plus the new species, *E. pninae*, are apparently closely related and form one group. The second group is made up of *E. iphionae* and *E. kugleri*, which are even more similar to each other than are the species of the first group; however, they are not too closely related to the type species and perhaps have greater affinities to *Goniurellia* Hendel. The third element is *E. abyssinica* by itself. Although its wing pattern is similar to that of *E. megacephala*, its longer and angular head and short lower squama detract from its congeneric status with the other species of the genus.

Euarestella pninae Freidberg, new species

(Fig. 1)

Head.—Length–height–width ratio 5.7:7.5:10.0. Frons convex, 2.9 times as wide as eye. $\frac{2}{3}$ as long as width at vertex, slightly narrower anteriorly; frontal stripe bare or with few fine, yellowish, inconspicuous hairs at anterior margin; lunule large; parafacial almost linear; gena as wide as antenna; face slightly concave; epistome slightly or moderately projecting; antenna distinctly shorter than face, 3rd segment about 1.6 times as long as wide, rounded at apex; arista microscopically pubescent; proboscis capitate, palp normal; 2 upper, 3 lower fronto-orbital bristles; anterior lower fronto-orbital bristle about half as long as the other 2 and usually paler, but not distinctly lanceolate; ocellar bristle as long as anterior upper fronto-orbital bristle; ocellar, inner vertical, anterior upper fronto-orbital, lower fronto-orbital and genal bristles acuminate and brownish, the others lanceolate and whitish. Head yellowish to brownish, 3rd segment of antenna, proboscis and apex of palp sometimes brown; "V" marking on upper occiput, ocellar spot and slender part of arista dark brown to black; most parts very lightly pollinose; pubescence yellowish.

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Figs. 1-4: Left wings of Tephritidae: 1, *Euarestella pniae* Freidberg, n. sp.; 2, *Tephritis bimaculata* Freidberg, n. sp.; 3, *T. jabeliae* Freidberg, n. sp.; 4, *T. hurvitzi* Freidberg, n. sp.

Thorax.—Mesonotum slightly wider than long; scutellum triangular, short and rather convex; chaetotaxy complete; bristles acuminate, brownish; posterior notopleural and pteropleural whitish; dorso-centrals situated on, or somewhat anterior to, line of anterior supra-alars. Only basal scutellar bristle present; pubescence whitish, coarse; pollinosity gray, with yellowish tinge, distinctly yellow on yellow parts: ground color of mesonotum, except more or less broad lateral margin, of scutellum, except margin and apex, and of large spots on pleura black; occasionally scutellum blackened only at extreme base, and only sternopleuron and hypopleuron with black spots; squamae white, with yellow margin; halter yellow.

Legs.—Normal in shape and bristling; yellow, with whitish to brownish pubescence and bristles.

Wing (Fig. 1).—Stigma about twice as long as wide; distance between crossveins slightly longer than r-m crossvein; vein r_{4+5} ending at wing apex, bare; cell CuP with a small point; costal spine very small. Pattern: almost uniform reticulation, more pronounced at anterior half of wing; stigma brown except at base; hyaline spots at anterior part of wing usually as wide as cells; cell R_1 with 3 hyaline spots, cell R_3 with 5-6 spots, cell BR with 2 spots in apical half, cell D with 3 spots, cell R_5 with 2 large spots in basal half, then 3-4 smaller spots in 2 rows and a large apical spot, the small spots sometimes united with each other or with 2nd basal spot; apical fork more or less developed; cell M usually with 5 spots in 2 rows, cell CuA_1 with 6-8 spots in 2 rows, axillary lobe completely reticulate.

Abdomen.—Subshiny, with light gray pollinosity, with whitish pubescence and brown bristles; terga vary from almost entirely black with narrow yellow posterior margin to mainly yellow with black spots at anterior and lateral margins; 6th tergum of female

about as long as 5th. Genitalia: 9th tergum of male elongate oval; each twisted rod with 2 posterior spicules in addition to 2 inner prensisetae; phallosome very short; vesica very long; oviscape shiny brownish yellow, with dark brown to black base, dorsum about as long as combined length of last 2 terga; pubescence brownish, fine and sparse, sometimes whitish at base.

Size.—Length of wing: 2.6-3.7 mm; length of oviscape (ventrally): 0.6-1.0 mm.

Material examined.—Holotype ♂, allotype ♀ and 1 ♂, 3 ♀ ♀ paratypes, Israel, Ein Feshkha, emerged on 27-28.III.1977 and 4-5.IV.1977 from *Pulicaria undulata* (L.) Kostel (Compositae), collected on 15. III.1977, M. Kaplan. Additional paratypes: Israel, Dead Sea Area, Kallia, 8.III.1976 (2 ♀ ♀), 25.III.1975 (1 ♀), 13.II.1975 (1 ♀), 30.III.1977, ex *P. undulata*, 9-10.IV.1977 (1 ♂, 1 ♀), Ras Feshkha, 22.XI.1976 (1 ♂), Nahal Qidron, 13.IV.1978 (1 ♂). Sinai Mountains, Moon Valley, 30. VIII. 1970 (1 ♂). The larvae of this species apparently feed in the stems of the host plant, as evidenced by puparia found in some stems.

Remarks.—*Euarestella pniae* is closely related to *E. megacephala*, differing from it by having 3 concolorous lower fronto-orbital bristles, frontal stripe usually bare, veins r_{4+5} and m parallel, the former vein bare, 6th tergum of female about as long as 5th,

and 9th tergum of male on either side with 2 posterior spicules in addition to 2 prensisetae. *E. megacephala* usually has 4 lower fronto-orbital bristles, frontal stripe abundantly pubescent anteriorly, veins r_{4+5} and m divergent toward apex of wing, the former vein setulose along distal section, 6th tergum of female shorter than 5th, and 9th tergum of male only with 1 prensiseta on either side and without spicules. In addition, *E. pninae* is a smaller species, with the wing pattern more evenly reticulate and with more hyaline spots than in *E. megacephala*.

Etymology.—This species is named in honor of my wife, Pnina.

Genus *Tephritis* Latreille

Tephritis Latreille 1804: 196. Type species, *Musca arnicae* Linnaeus, designated by Cresson, 1914: 278.

The genus *Tephritis* contains about 100 species in the Palaearctic region alone. The three new species added here are closely related to other, known species, differing from them mainly by characters of the wing pattern. Within *Tephritis*, male genitalia are rather uniform, therefore of little taxonomic value. Female genitalia in this genus might be of more importance for the separation of species.

Tephritis bimaculata Freidberg, new species

(Fig. 2)

This species is similar to *T. dioscurea* (Loew), differing as follows:

Stigma mostly black (Fig. 2), with base and apex hyaline, but lacking an enclosed hyaline spot; two large square hyaline spots in cell R_1 almost equal in size; two hyaline spots in apical half of cell BR closer and larger, usually occupying entire width of cell; hyaline spots within range of large black preapical spot larger; as a consequence black spot on stigma and preapical spot relatively smaller. In *T. dioscurea* (see Hendel, 1927, Taf. XIV, Fig. 8) stigma black, with an enclosed hyaline spot; basal hyaline spot in cell R_1 distinctly larger than apical spot; hyaline spots in apical half of cell BR more distant and smaller; hyaline spots within large black preapical spot smaller; as a consequence large black spots of wing relatively larger.

Size.—Length of wing: 2.6–3.7 mm; length of ovicape (ventrally): 0.6–0.7 mm.

Material examined.—Holotype ♂, allotype

♀, 14♂♂, 24♀♀ paratypes, Mt. Hermon, 2000 m, 22.VI.1973, A. Freidberg. Additional 70 paratypes from Mt. Hermon, 1300–2000 m, Har Dov, Golan Heights (Kfar Nafech, Qusbiye, Merom Golan), Upper Galilee (Ha'Tanur), Mt. Carmel, Northern Negev (Mash'abei Sade, Qzi'ot), Sinai (St. Katharina, Mt. Abbas, Wadi Tlach, El Arba'in, Wadi Taiba, Qzaima), collected from March through September.

Etymology.—The specific epithet, *bimaculata*, refers to the two distinct brown spots on the wing.

Tephritis jabeliae Freidberg, new species

(Fig. 3)

This species is similar to *T. nigricauda* (Loew), differing from it as follows:

Brown spots on wing narrower (Fig. 3), resulting in more banded wing pattern; brown spots at apex of veins r_{4+5} and m together forming wide apical band, enclosing small hyaline spot in apex of cell R_5 , usually narrower than half width of cell; brown spot on vein a_1 not connected to spots in cell CuA_1 ; distance between crossveins usually shorter than length of $r-m$ crossvein; dorsum of ovicape slightly shorter than combined length of terga 5+6. In *T. nigricauda* (see Hendel, 1927, Taf. XIV, Fig. 7) brown spots on wing wider and pattern not appearing banded; hyaline spot in apex of cell R_5 large, wider than half width of cell; brown spot on vein a_1 connected to basal spot in cell CuA_1 ; distance between crossveins usually at least as long as $r-m$ crossvein; dorsum of ovicape slightly longer than combined length of terga 5+6.

Size.—Length of wing: 3.3–3.8 mm; length of ovicape (ventrally): 0.6–0.8 mm.

Material examined.—Holotype ♂, allotype ♀, 50 paratypes, Sinai Mountains, Mt. Katharina, 2500 m, 13.VII.1974, F. Kaplan and A. Freidberg. Additional 50 paratypes from Sinai Mountains (Mt. Katharina, St. Katharina, Gabel [Mt.] Mussa, Mt. Abbas, Wadi Tlach, El Arba'in), collected from May through September. The host plant is suspected to be *Pyrethrum santolinoides* DC (Compositae). *T. jabeliae* as well as *Oxya superflava* Freidberg (1974), which apparently feed on the same host plant, may be endemic to the Sinai Mts.

Etymology.—The name *jabeliae* refers to the mountains (of southern Sinai) and to the Bedouin tribe dwelling there.

Tephritis hurvitz Freidberg, new species

(Fig. 4)

This species resembles *T. recurrens* Loew, differing as follows:

The part of the wing pattern behind vein r_{4+5} , which is less reticulate, having large hyaline spots and areas more united with each other, and brown rays to hind margin narrower and more distinct as rays: gray cloud crossing middle of cell D narrower than hyaline margin between it and hind margin of wing, not reaching wing margin and ending narrowly proximal to vein a_1 ; first three hyaline indentations distal to gray cloud (2 across apex of cell D and 1 beyond dm-cu crossvein) continuous, not crossed by brown bars. In *T. recurrens* (see Hendel, 1927, Taf. XV, Fig. 5) gray cloud crossing middle of cell D wider than hyaline margin between it and hind margin of wing, reaching hind margin at least beyond end of vein a_1 and extending proximally as far as longitudinal fold of axillary lobe; first three hyaline indentations distal to gray cloud usually broken by brown bars into rounded hyaline spots.

Size.—Length of wing: 3.6–4.9 mm; length of ovicape (ventrally): 1.1–1.4 mm.

Material examined.—Holotype ♂, allotype ♀, 19 ♂♂, 29 ♀♀ paratypes, Israel, Mt. Hermon, 1600 m, 27.VI.1977, emerged from stem galls on *Tragopogon longirostris* Sch. Bip. (Compositae) on 2–8.VII.1977, A. Freidberg. Additional 170 paratypes from Mt. Hermon, 1100–2000 m, Golan Heights (10 km S. Qunaitra, Kfar Nafech), Upper Galilee (Ha'Tanur, Mt. Meron) and Lower Galilee (Arbel), collected or reared from March through October. The species has also been reared from stem galls on *Scorzonera syriaca* Boiss et Bl. (Compositae). Additional paratypes were examined from the following localities outside Israel: *Turkey*, 25 m S. W. Konya, 14.VIII.1974 (1 ♀), P. S. Cranston. *Cyprus*, Mt. Trodos, 7.IX.1951 (4 ♂♂, 5 ♀♀), 28.VI.1937 (2 ♀♀), Pera Pedi, 8.VI.1937 (1 ♂), Marvomoustakis. *Iran*, N. W. Persia, Kazim, 19.VII.1919 (1 ♂), Buxton. *U.S.S.R.*, Uzbek S.S.R., Chim Gand, 2000 m, 90 km NE Tashkent, 16.VIII.1968 (2 ♂♂, 2 ♀♀), C. Sabrosky. A female from Greece, Athens, 1.IV.1980,

Mathis & Freidberg, which shows some intermediate characters between *T. hurvitz* and *T. recurrens*, is not included as a paratype.

Etymology.—This species is named in honor of Mr. E. Hurvitz of Kibbutz Dan, Director of the Beit Ussishkin Regional Museum, for his hospitality, assistance and encouragement during a survey of Mt. Hermon.

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